Senegal - Roads

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Overview

Identification

COUNTRY
Senegal

EVALUATION TITLE
Roads

EVALUATION TYPE
Independent Evaluation

ID NUMBER
DDI-MCC-SEN-IE-RRP-2019-v1

Version

VERSION DESCRIPTION
- v01: Edited, anonymous dataset for public distribution.

Overview

ABSTRACT
An economic analysis (HDM-4/RED) and a performance evaluation (maintenance/transport sector work) of the MCC Senegal Roads Rehabilitation Project.

This EDR covers the following research areas:

0. Project Implementation

a. The methodology for analyzing the extent to which the RRP was implemented as planned

and documentation of any deviations from original plan. There is currently no guidance on where deviations were made from the original plan - further information will be required on this to complete the evaluation.

1. Engineering Analysis and Economic Modelling

a. The methodology for assessing the quality of existing data, and a plan for updating data

collection required for modelling purposes. This determines the road map for how the contractor plans to meet the data-quality level specified (i.e. IQL-2) and what protocol for roadside data collection to include.

b. The methodology for determining the HDM-4 assumptions used to model costs and benefits, including options for improving assumptions (e.g. Comparing past investment

trends against overall asset quality over time).

c. The approach used to review MCC's modelling of the ex-ante performance of the

infrastructure. This review will inform the model's parameters and re-adjust assumptions where needed.

d. The proposed methodology and assumptions to be used to update the project's Economic Rate-of-Return (ERR) calculations.

2. Maintenance

a. A descriptive review and technical assessment of the road authority's maintenance

practices, including a comparison of the road authority's administrative records and reports of maintenance resources, for both elements of RRP.

b. A Political economy analysis of road maintenance and improvement in investment decisions (planning, budgeting, implementation and oversight relative to the road authority's program for the infrastructure).

3. Road Usage Patterns

a. A methodology for estimating traffic composition along each road element. It includes

road-user representative estimates of changes in travel times and transport costs.

b. An assessment of the costs and value of gathering origin- destination (O-D) evidence (O-D

vehicle intercept surveys versus other methods for gathering road usage data on relevant road segments)

c. An assessment of the changes in road usage patterns through retrospective data collection. d. An exploration of changes in the structure of transportation demand, including addressing

whether changes have occurred as a result of MCC road investments or due to unrelated factors.

4. Transportation Market Structure

a. An evaluation of the Senegalese transport market structure and the institutions that

regulate and govern it, including possible noncompetitive market behavior. This includes a literature review summarizing the current evidence for the institutional structure of the Senegalese transport industry, and how it is regulated.

b. An efficiency analysis of the commercial road-transport industry and how changes in vehicle operating costs (VOCs) affect costs and purchaser pricing and how political- economy factors affect cost-savings pass through.

EVALUATION METHODOLOGY
Independent Ex-Post ERR and HDM-4

UNITS OF ANALYSIS
individuals, households, commercial enterprises

KIND OF DATA
Sample survey data [ssd]

Coverage

GEOGRAPHIC COVERAGE
Regionally; Senegal River Valley and Casamance

Producers and Sponsors

PRIMARY INVESTIGATOR(S)

Name	Affiliation
CH2M HILL, Inc.	

FUNDING

Name	Abbreviation	Role
Millennium Challenge Corporation	MCC	

Metadata Production

METADATA PRODUCED BY

Name	Abbreviation	Affiliation	Role
Millennium Challenge Corporation	MCC		Review of Metadata

DATE OF METADATA PRODUCTION
2019-07-19

DDI DOCUMENT VERSION
Version 1 (Original 2019-07-19): Evaluation Design Report, English and French

DDI DOCUMENT ID
DDI-MCC-SEN-IE-RRP-2019-v1

MCC Compact and Program

COMPACT OR THRESHOLD
Senegal Compact

PROGRAM
The Roads Rehabilitation Project ($324 Million) was one of two projects of the Millennium Challenge Corporation (MCC) Compact between the Governments of the United States and Senegal that was implemented between September 23, 2010 and September 23, 2015. Sixty-eight percent of the total budget was executed. The goal of the $540 million Compact was to reduce poverty through economic growth by opening up productive agricultural zones in the country and improving access to markets and services. The Roads Rehabilitation project was intended to connect major population centers and agricultural production areas through the rehabilitation of 372 kilometers on two of Senegal's critical transport corridors: National Road #2 (Route Nationale 2, RN2) in the Saint Louis region and National Road #6 (Route Nationale 6, RN6) in the Casamance.

MCC SECTOR
Transport (Trans)

PROGRAM LOGIC
This evaluation includes an economic analysis (HDM-4/RED) and a performance evaluation (maintenance/transport sector work) of the MCC Senegal Roads Rehabilitation Project. The Roads Rehabilitation Project ($324 Million) was one of two projects of the Millennium Challenge Corporation (MCC) Compact between the Governments of the United States and Senegal that was implemented between September 23, 2010 and September 23, 2015. Activity 1: The National Road #2 (RN2), which spans from the north of Senegal, provides a strategic corridor from Dakar Harbor to Mauritania and Mali, via several large cities such as Richard Toll and Saint-Louis. Between 2010 and 2015, 120 kilometers of road alignment from Richard Toll to Ndioum were widened and upgraded, including the construction of the Ndioum Bridge. Activity 2: The National Road #6 (RN6) is the primary means of distributing goods from the Casamance region in the south to the rest of Senegal without having to cross over Gambia. It connects the south of Senegal to Guinea Bissau, Guinea and Mali. Between 2010 and 2018, 252 kilometers of road alignment between Ziguinchor and Koukané were widened and upgraded, including the existing Kolda Bridge. The outputs from the RRP included the rehabilitation of 372 kilometers of road along RN2 and RN6, the upgrade of the existing Kolda Bridge, and the installation of a new bridge at Ndioum. Linked to these improvements, another output in terms of temporary construction job creation was added. In addition to infrastructure works, the RRP also implemented several social and gender equality projects that should improve women's access to social services. The outcomes of the program were split into two main categories: Short-term outcomes (those immediately realized upon completion of the infrastructure works). Medium-/long-term outcomes which would take longer to materialize (assumed to materialize in years 6 to 10). Impacts, which are assumed to be only fully reached after year 10, include an increase in levels of income. These impacts are assumed to be spread over 1,350,000 project beneficiaries.

PROGRAM PARTICIPANTS
Compact Implementation Participants · National Government: MCA-S, AGEROUTE, · Centre de Formation & Perfectionnement des Travaux Publiques (CFPTP), · Direction des Routes, Direction des Transports Routiers (Directorate of Road Transports), Fonds d'Entretien Routier Autonome (FERA). · Regional Government: AGEROUTE Regional offices · Local Government: Mayors' offices, · Prefects' offices · Donors (bilateral, multilateral and Non-Governmental Organization [NGO])

Sampling

Sampling Procedure

Traffic Count Survey - Survey days: 7 consecutive days encompassing all market days
Origin-Destination Survey - Sample rate of 10% of each vehicle type at each station.
Vehicle Operating Cost Survey - vehicle dealerships, garage/servicing companies, fuel price (secondary if possible), bus and road haulage operators, taxi and minibus operators
International Roughness Index (IRI) - Interval: continuous measurement over the whole length of the roads. Results will be reported at intervals of 100 meters.

Questionnaires

Overview

For both Activity 1:RN2 and Activity 2: RN6

Traffic Count Survey: Location: well outside the cities or villages crossed (2-6 km from the limits of the populated areas); Adjustments: Using secondary data (example fuel consumption and GoS national transport statistics) to adjust for seasonal variation; Survey period: 24 hours/day; Survey days: 7 consecutive days encompassing all market days

Orgin-Destination Survey: Location: well outside the cities or villages crossed; Survey period: 6 a.m. to 8 p.m.;Survey days: 4 consecutive days (including market and non-market days) on stations on each road;Sample rate: 10% of each vehicle type at each station.

Vehicle Operating Cost Survey: VOC data will be collected from: vehicle dealerships, garage/servicing companies, fuel price (secondary if possible), bus and road haulage operators, taxi and minibus operators

Axle load data collection and survey: Will be collect axle load data from Afrique Pesage through the Direction des Routes (Directorate of Roads) (2014-2018 data is already available to ET).

International Roughness Index data collection: Willl use laser profilometer, which is available in Senegal and is Class 3 per ASTM standard E1926. AGEROUTE has been using this equipment since 2015. Thus, using the same equipment will ensure consistency in methodology. However, the majority of the firms only having Bump Integrator, the ET will not exclude the use of this equipment for cost-effectiveness, noting that the Pump Integrator is also Class 3. ; Measurement will be carried out at outer wheel path; Interval: continuous measurement over the whole length of the roads. Results will be reported at intervals of 100 meters.;

High resolution video: Will use the data currently collected by AGEROUTE and use the high-resolution videos for quality check; High-resolution videos will be collected using a dashcam with GPS capability embarked on a vehicle (same vehicle as the one that will be used for IRI measurement)

Data Collection

Data Collection Dates

Start	End	Cycle
2020-01-15	2020-05-15	N/A

Questionnaires

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Data Processing

No content available

Data Appraisal

No content available